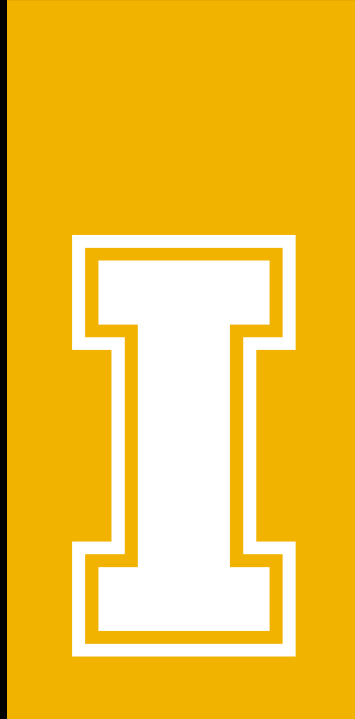




PROBLEM STATEMENT

Arcadia Lake, a critical reservoir facility, faces challenges in meeting the rising water needs of Edmond, Oklahoma. The existing 30mgd pump station has been unable to meet the growing urban water demand, so the expansion of the pump station is imperative.

OBJECTIVE

To design a 60 mgd intake and pump station and the backup generator which should include full 72-hour capacity supported by sub-fuse fuel storage

BACKGROUND

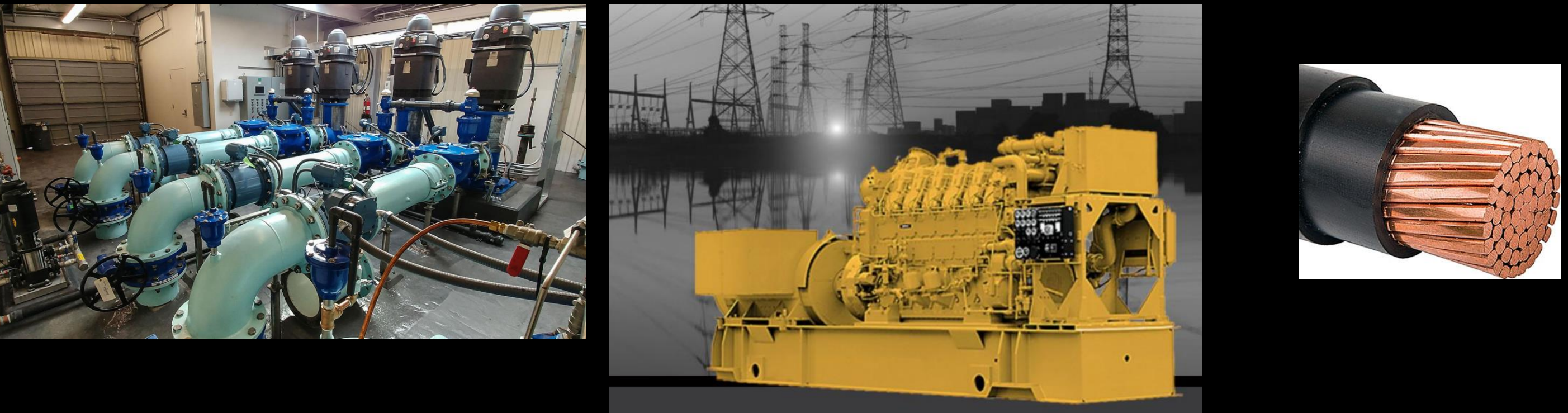
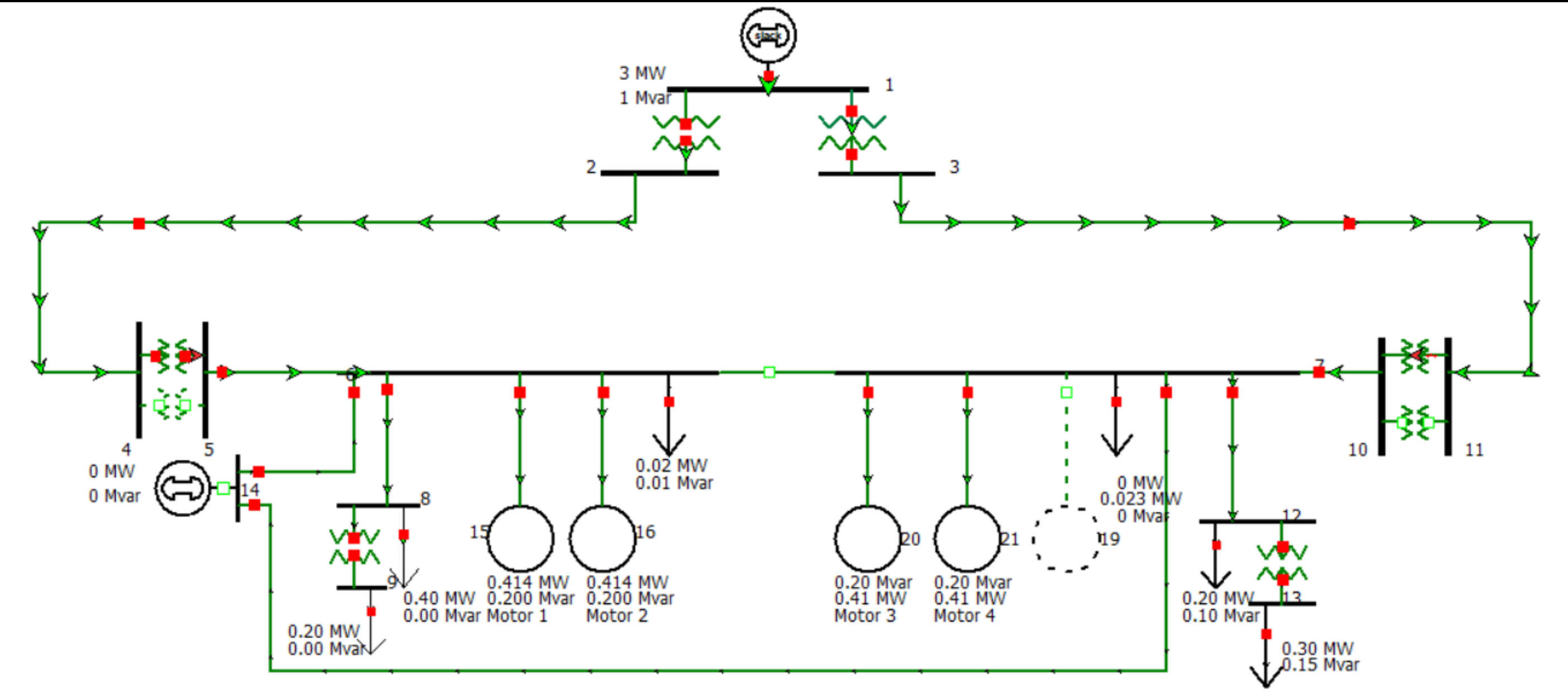
The Arcadia Lake Pump Station project is located in Edmond, Oklahoma. The project is a 30 mgd (million gallons per day) raw water pump station that can be readily expanded to meet an ultimate capacity of 60 mgd.



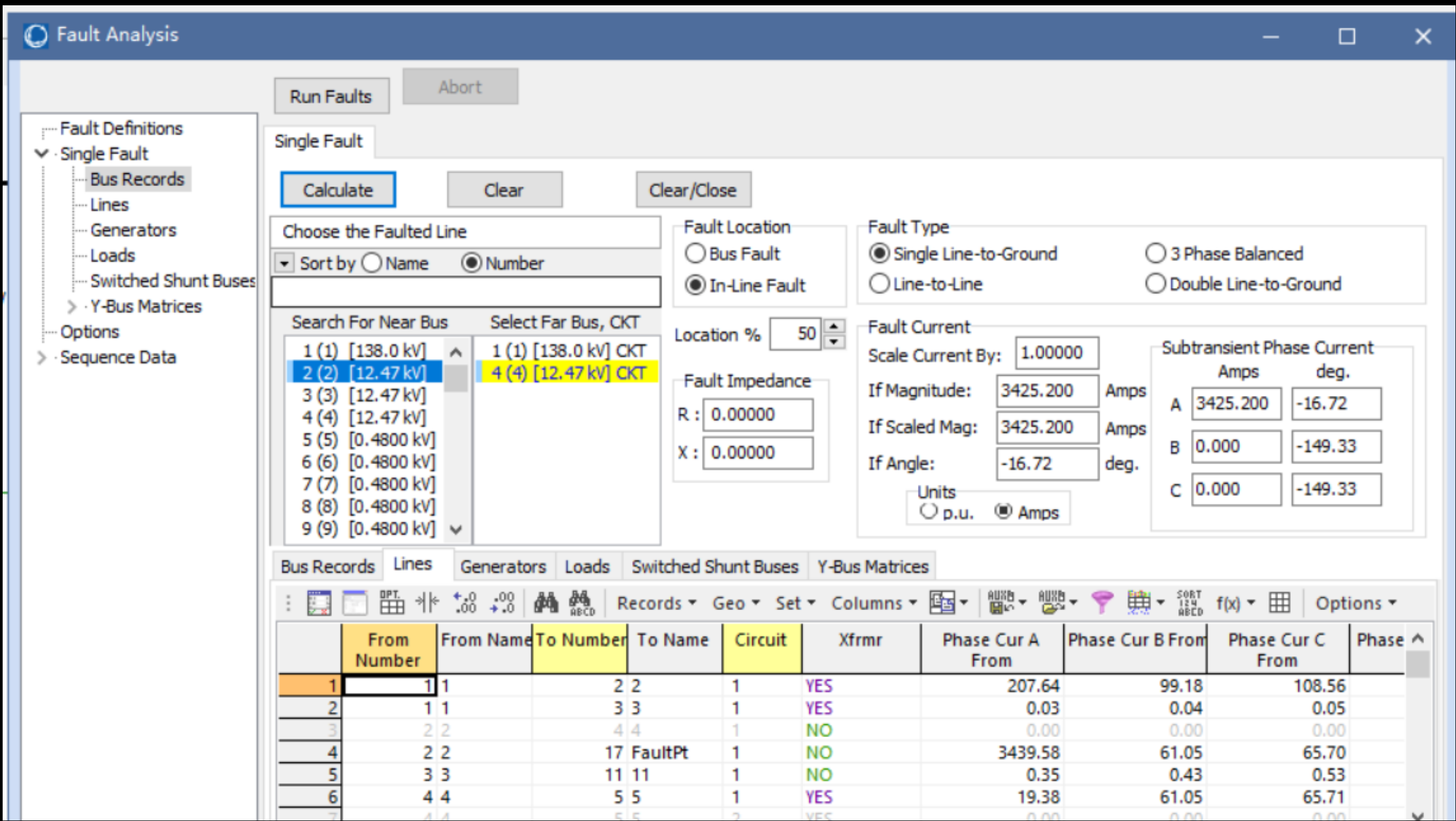
VALUE PROPOSITION

To address this issue, a new raw water intake and pump station with a capacity of 60 mgd is required. It needs to be stable, reliable and secure.

VALIDATION AND RESULTS



FAULT ANALYSIS RESULTS



CONTINGENCY ANALYSIS WITH CE

- I Pipelines are buried at a minimum of 4 feet
- I Adequate compaction of the pipe bed materials
- I Setting elevations of the reservoir to a return period of greater than 100 years
- I Pipe material is a structural steel pipe that provides more than enough strength to be able to withstand both internal and external pressures
- I The sloped pipeline will also have blowoff valves

PROJECT COST

equipment name	cost
five VFDs	371,000
MCC	130,000
MCC warranty for three years	81,000
MCC startup and commissioning	21,000
Witness testing	2700
10% contingency	60570
Tax	59000
sub total VFDs and MCC	745,000
2500KWgenerator and fuel tank	1.5million
500MCM(wire)	33.8/ft
750MCM(wire)	67.6/ft
switchgear(10)	1.2million
control panel	0.2million
panel boards(4)	40,000
tax(8.5%)	0.27million
10%contingency	0.29million
subtotal	3.975million
installation	6million
Grand total (electric + control)	11.22million
Total	0.163billion

ACKNOWLEDGEMENTS

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